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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/016,009 10/30/2001 Charles L. Arvin

29505 7590 02/09/2004

DELIO & PETERSON, LLC
121 WHITNEY AVENUE
NEW HAVEN, CT 06510

FIS920010162US1 4125

EXAMINER

CULBERT, ROBERTS P

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/016,009

Applicant(s)

ARVIN ET AL.

Examiner

Roberts Culbert

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10/30/01 6) ☐ Other: _____

Art Unit: 1763

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group 1 claims 1-5 in the response to the restriction requirement is acknowledged. The traversal is on the ground(s) that the method claimed in Group I and the apparatus and reworked electronic component claimed in Groups II and III are not directed to independent **and** distinct matter.

This is not found persuasive because under the statute an application may properly be required to be restricted to one of two or more claimed inventions only if they are able to support separate patents and they are either independent **or** distinct. See MPEP § 803.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S Patent 6,435,398 to Hartfield.

Hartfield teaches a method for reworking an electronic component with copper or copper/nickel pads containing a nickel layer and an overlying gold layer comprising the steps of; supplying an electronic component having copper or copper/nickel pads (102) thereon containing a nickel layer (110) and an overlying gold layer (112), etching the gold layer on the component pads (Col. 6, Lines 53-55), etching the nickel layer on the component pads (Col. 7, Lines 15-60) and treating the etched component to

Art Unit: 1763

remove products formed during the etching steps and corrosion products (Col. 8, Line 11), and plating the restored copper surface with a nickel layer followed by a gold layer. (Col. 8, Lines 12-35)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,435,398 to Hartfield in view of the publication "High Resolution Powder Blast Micromachining" to Wensink.

As applied above, Hartfield teaches the method of the invention substantially as claimed, but does not teach that the pads are restored to their original condition by media blasting.

Wensink teaches that media blasting (powder blasting) is suitable for surface preparation prior to plating. *See Introduction*. It would have been obvious to one of ordinary skill in the art at the time of invention to use media blasting to restore the pads to their original condition. One of ordinary skill in the art would have been motivated to use media blasting since Wensink teaches that media blasting is suitable for the purpose of preparing a surface for plating.

Art Unit: 1763

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,435,398 to Hartfield.

Regarding Claim 3, as applied above, Hartfield teaches the method of the invention substantially as claimed, but does not teach that the gold layer is etched using a cyanide containing solution, but does teach that a cyanide solution is traditional for etching a gold layer (Col. 6, Lines 24-25).

It would have been obvious to one of ordinary skill in the art at the time of invention to use a cyanide containing solution to etch the gold layer in the invention of Hartfield. One of ordinary skill in the art would have been motivated to use a cyanide containing solution in order to etch the gold layer in the traditional manner.

Regarding Claim 4, as applied above, Hartfield teaches the method of the invention substantially as claimed, but does not teach that the nickel layer is etched with an alkaline oxidizer containing solution having a pH greater than about 12.0.

However the solution ENSTRIP EN-86 was commercially available at the time of invention for the purpose of stripping electroless nickel deposits from copper and copper alloys. ENSTRIP EN-86 an alkaline oxidizer containing solution having a pH greater than about 12.0.

It would have been obvious to one of ordinary skill in the art at the time of invention to use an alkaline oxidizer containing solution having a pH greater than about 12.0 to etch the nickel layer since same was known to be suitable for the purpose of stripping electroless nickel deposits from copper and copper alloys.

Regarding Claim 5, as applied above, Hartfield teaches the method of the invention substantially as claimed, but does not teach that the etched component is treated using a cyanide containing solution.

Official Notice is taken of the fact that a solution of 20% KCN is well known in the electronics etching art to be suitable for etching a copper thin film.

Art Unit: 1763

It would have been obvious to one of ordinary skill in the art to use a 20% KCN solution to remove deposits from a copper thin film. One of ordinary skill in the art would have been motivated to use the 20% KCN solution in order to remove products formed during the etching steps and corrosion products as this step is notoriously old and well known in the electronics etching industry


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

R. Culbert



GREGORY MILLS
SENIOR PATENT EXAMINER
TECHNOLOGY CENTER 1700